United Heckathorn Feasibility Study Update

US EPA

Levin-Richmond Terminal

November 21, 2005

United Heckathorn Mtg.
Monday November 21, 2005, 10 AM – 12 Noon

Attendees

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10/15/05

COC Results

	Collected	4,4'-DDE	4,4'-DDD	4,4'-DDT	2,4'-DDD	2,4'-DDT	DDM	DDMU	CPCM
1A 10	7/7/2005	9.3 J	27	5.0 J	8.0 J	5 U	13 J	5 U	5 U
1B 100	7/7/2005	21	292	53	44 J	4 U	44 J	23 J	4 U
1C 1000	7/7/2005	42	542	306	120 J	170 J	68 J	39 J	7 J

- **No oxygenated products**
- **No fatty acid degradation products from plants**
- **Total Σ DDT 1A = 77 µg/kg, 1B = 483 µg/kg, 1C = 1,294µg/kg.**
- **No sign of aerobic mineralization**
- **Projected half-lives for destruction of DDT analogues with this process is in excess of decades and probably centuries**
- **Excellent situation to see changes brought about by aerobic degradation processes and with concentrations that are separated by ~ 17-fold**

United Heckathorn Feasibility Study

Scope

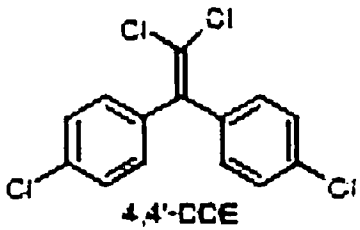
- **Potential Remediation Options for Sediment**
- **Alternative Dredge Removal Techniques**
- **Dewatering Techniques**
- **Disposal Options for Dewatered Sediment**

MycoRemediation Studies

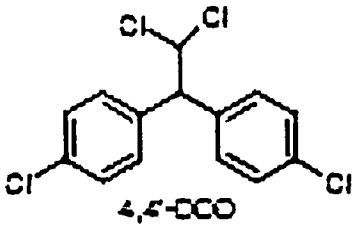
Process –

- ✓ **Identify COC's in materials to be treated**
- ✓ **Select Optimal Fungal Species**
  - **Tolerance of site conditions**
  - **Basic ability to propagate among COC's**
- ✓ **Train Species to COC's**
- ✓ **Expand culture to broadcast media (e.g. wood chips)**
- ✓ **"Jump-off" media to sediment/soil treatment**
- – **Measure success of treatment**

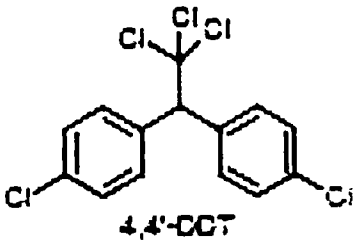
Identify COC's



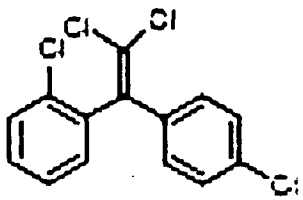
4,4'-DDE



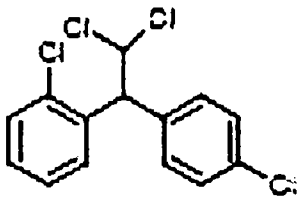
4,4'-DDD



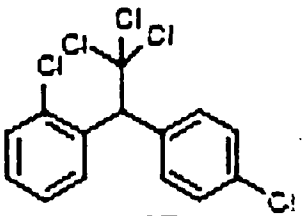
4,4'-DDT



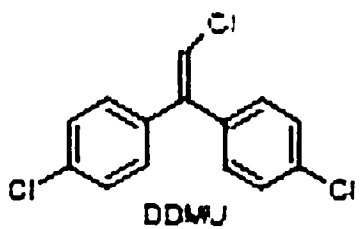
2,4'-DDE
not detected



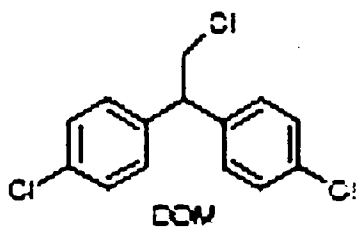
2,4'-DDD



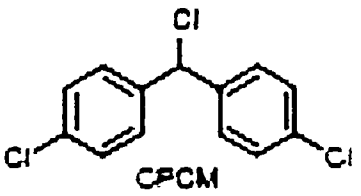
2,4'-DDT



DDMU



DDM



CPCM

Select Species

- **Tolerance to saline conditions**
  - ***Agaricus* sp 1**
  - ***Agaricus* sp 2**
- **Success in past remediation efforts**
  - **Ring structure degraders in presence or absence of chlorine – *Pleurotus ostreatus***
  - **Promising degrader of ring structures – *Trammetes* sp.**

4 potential species selected for training

Train Species

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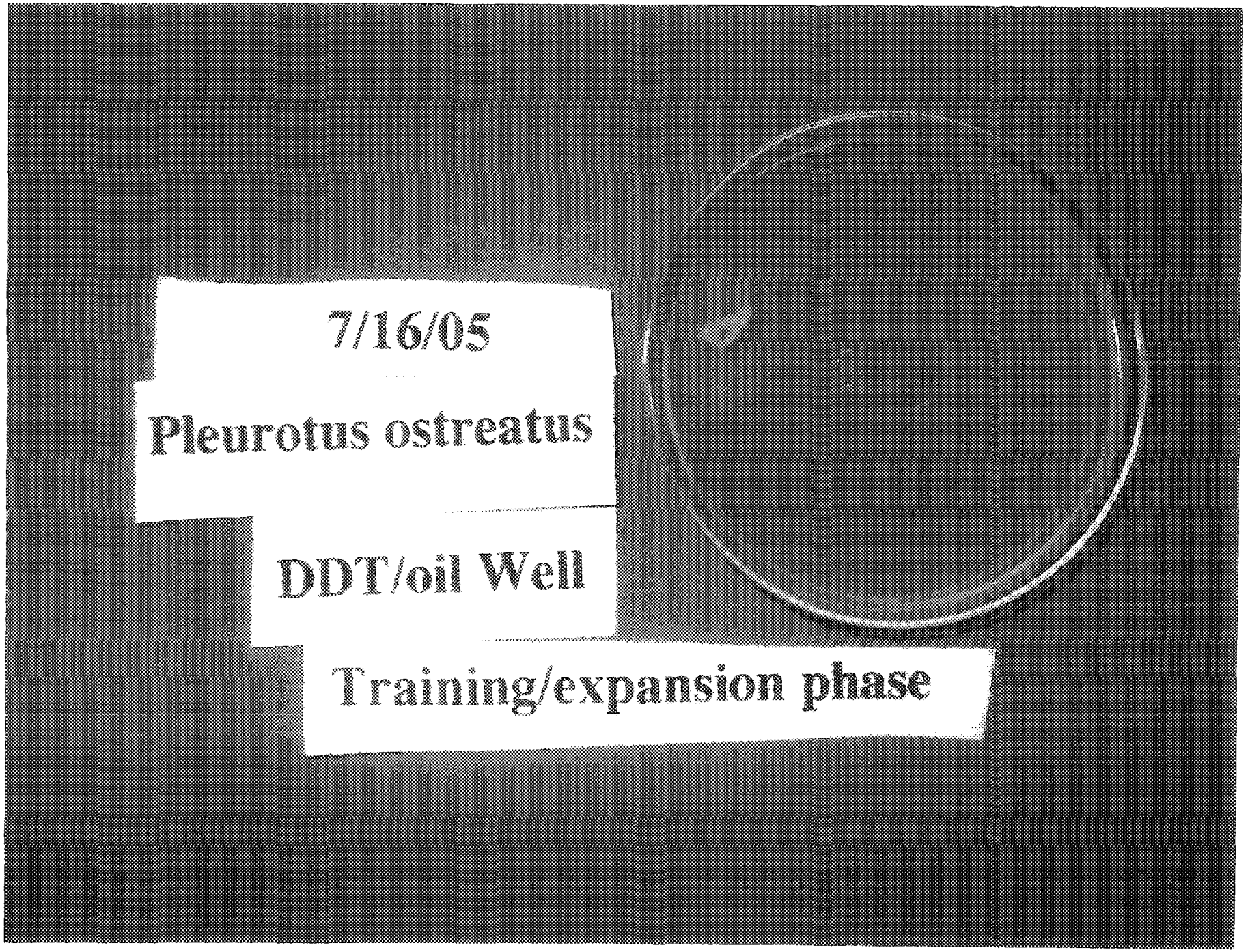
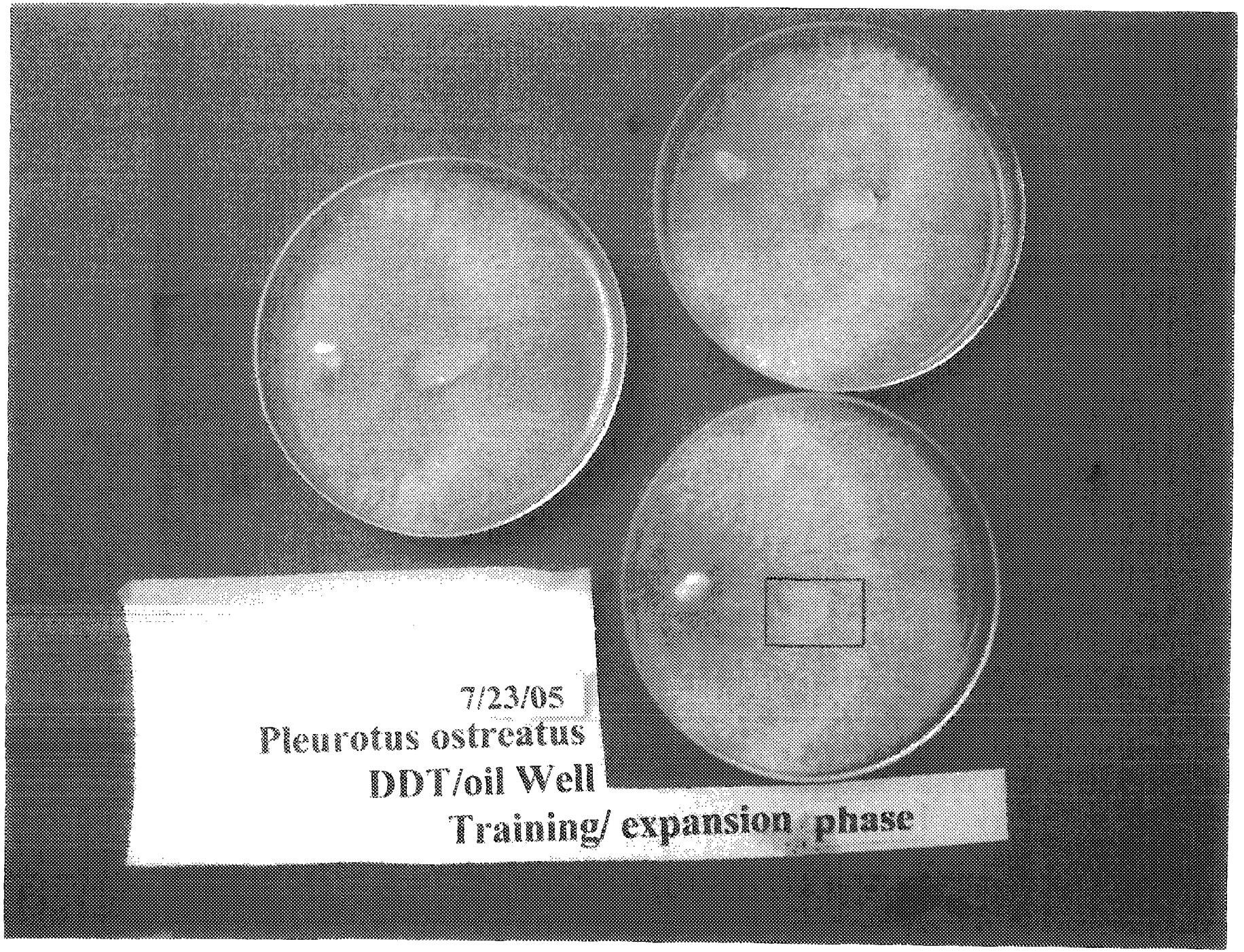
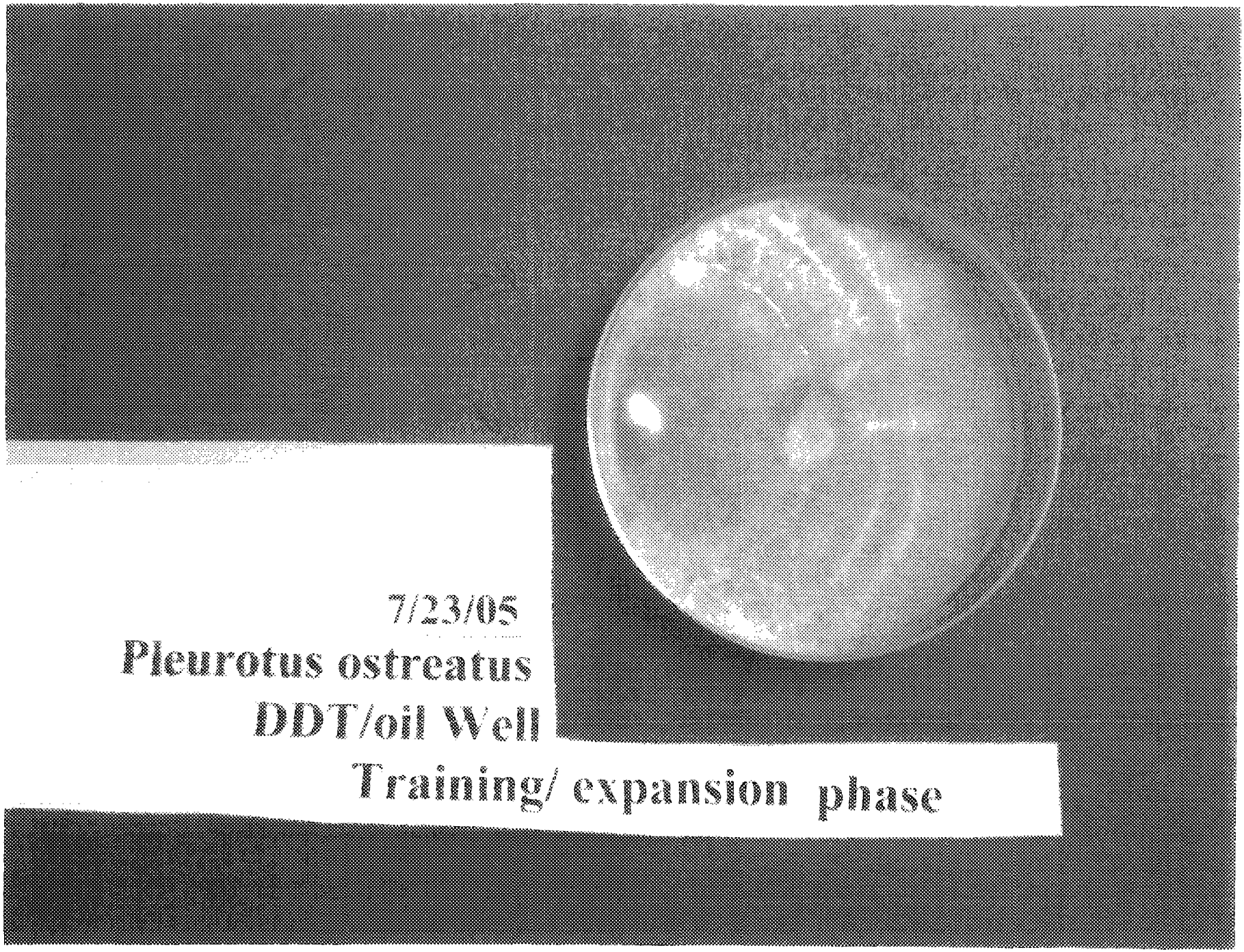
All 4 species trained to DDT as only food source.

- **All species slow to grow. Previously used species also slow.**
  - **Complex chemicals difficult to degrade.**
- **Second generation of trained all trained species to DDT as only food source.**
  - **All second generation species showed accelerated growth rate compared to initial training.**

Conclusions are that fungi are slow to adapt to DDT dominant environment but that sequential generation training improves growth rates.

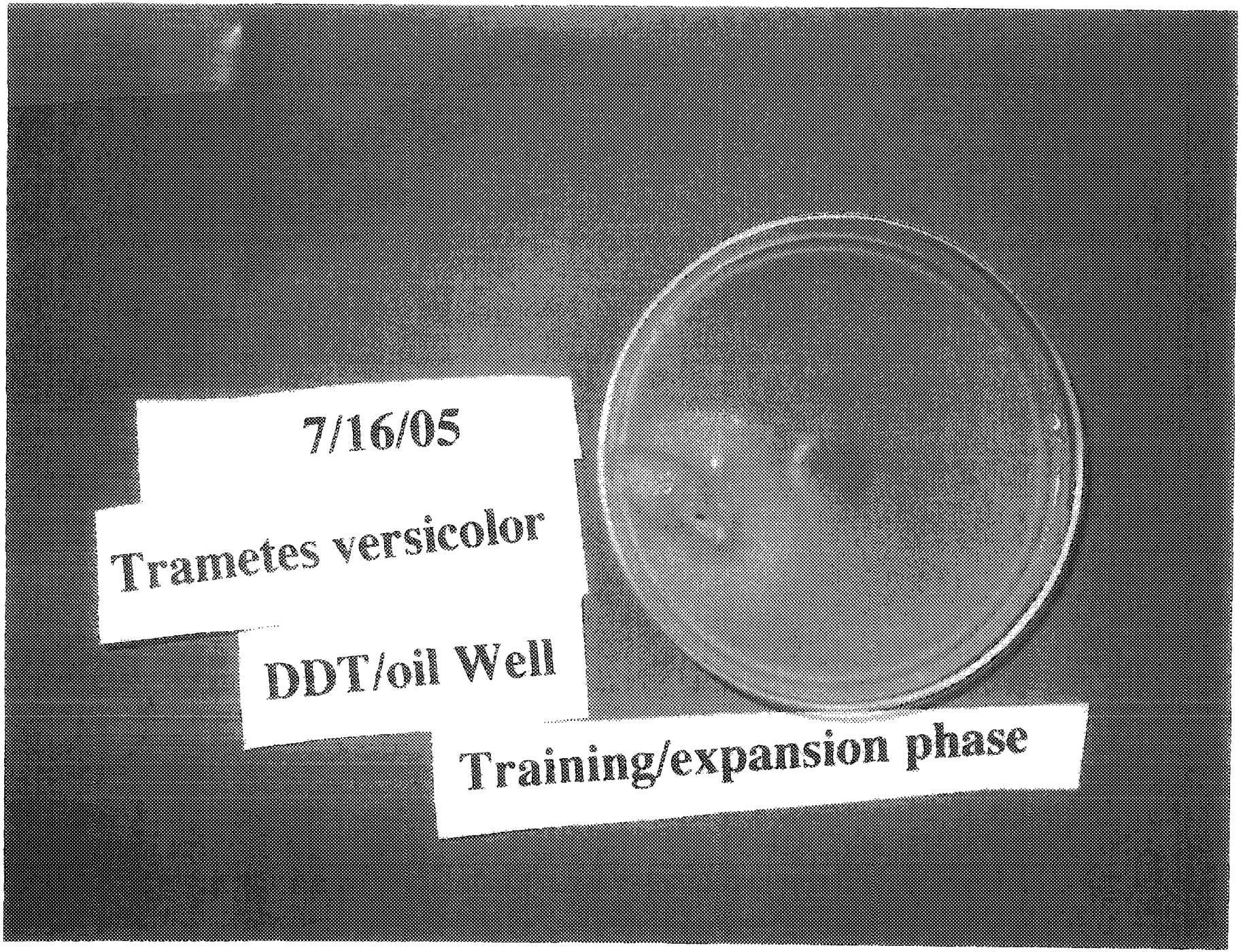

7/16/05
Pleurotus ostreatus
DDT/oil Well
Training/expansion phase


7/23/05
Pleurotus ostreatus
DDT/oil Well
Training/ expansion phase



7/23/05

Pleurotus ostreatus
DDT/oil Well
Training/ expansion phase


7/16/05
Trametes versicolor
DDT/oil Well
Training/expansion phase


7/23/05
Trametes versicolor
DDT/oil Well
Training/ expansion phase

Expand Trained Cultures

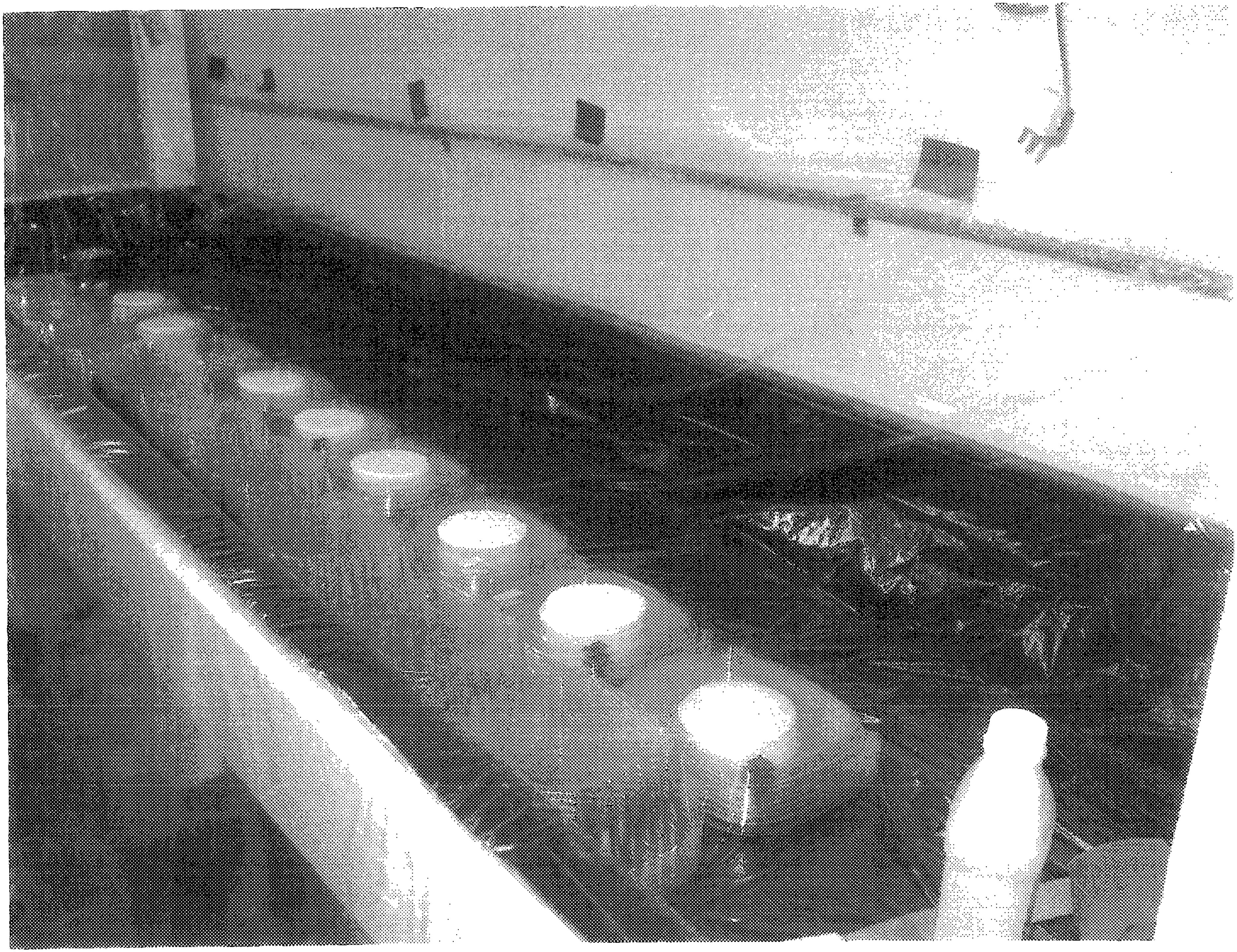
- ***Pleurotus*** **and** ***Trammetes*** **faster growth rate and expanded first to wood and grain.**

- **Agaricus expanded to wood and grain – better on grain than on wood (probably better food source but may not be the best remediation broadcast materials.**

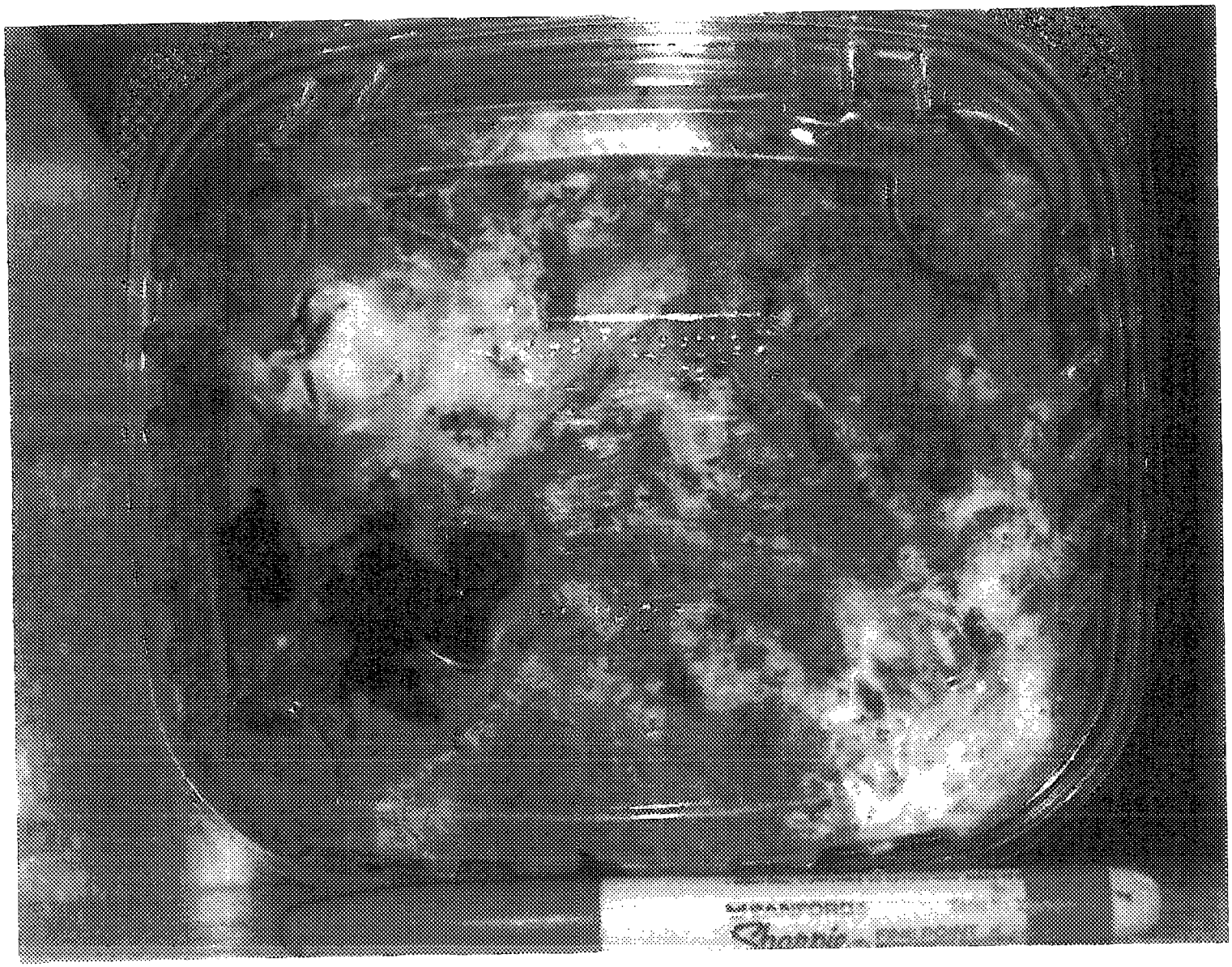
P.O. DOT
"Ironman"
7-23-85
P.O. DOT
"Ironman"
TIRES
P.O. DOT
"Ironman"
TIRES

Jump-off to Sediment/soil Treatment

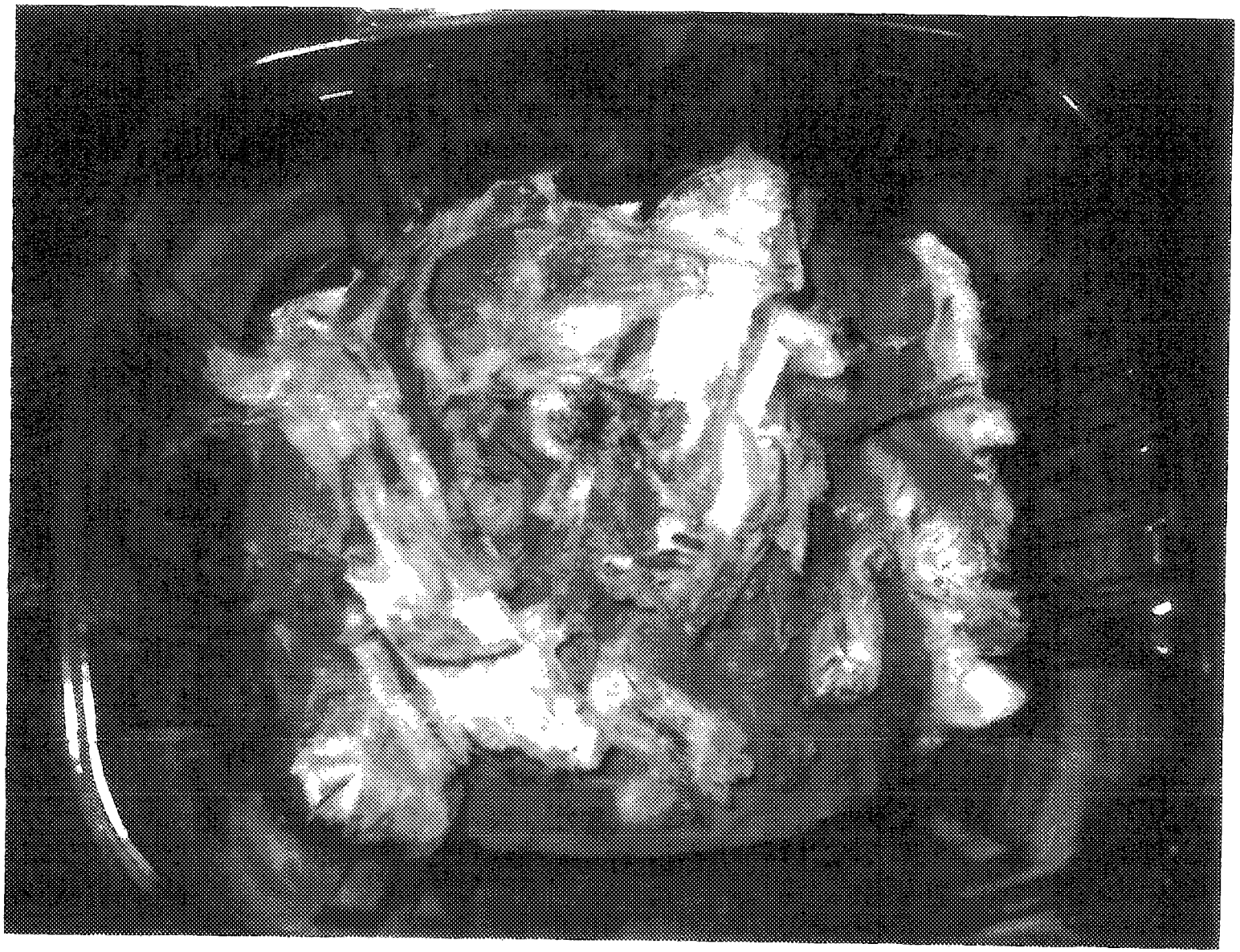
- **All four species have been added to the soils (~4 weeks of exposure)**
- **Agaricus not growing well**
- **Pleurotus and Trammetes growing better but not profusely**



Mycoremediation Inervation

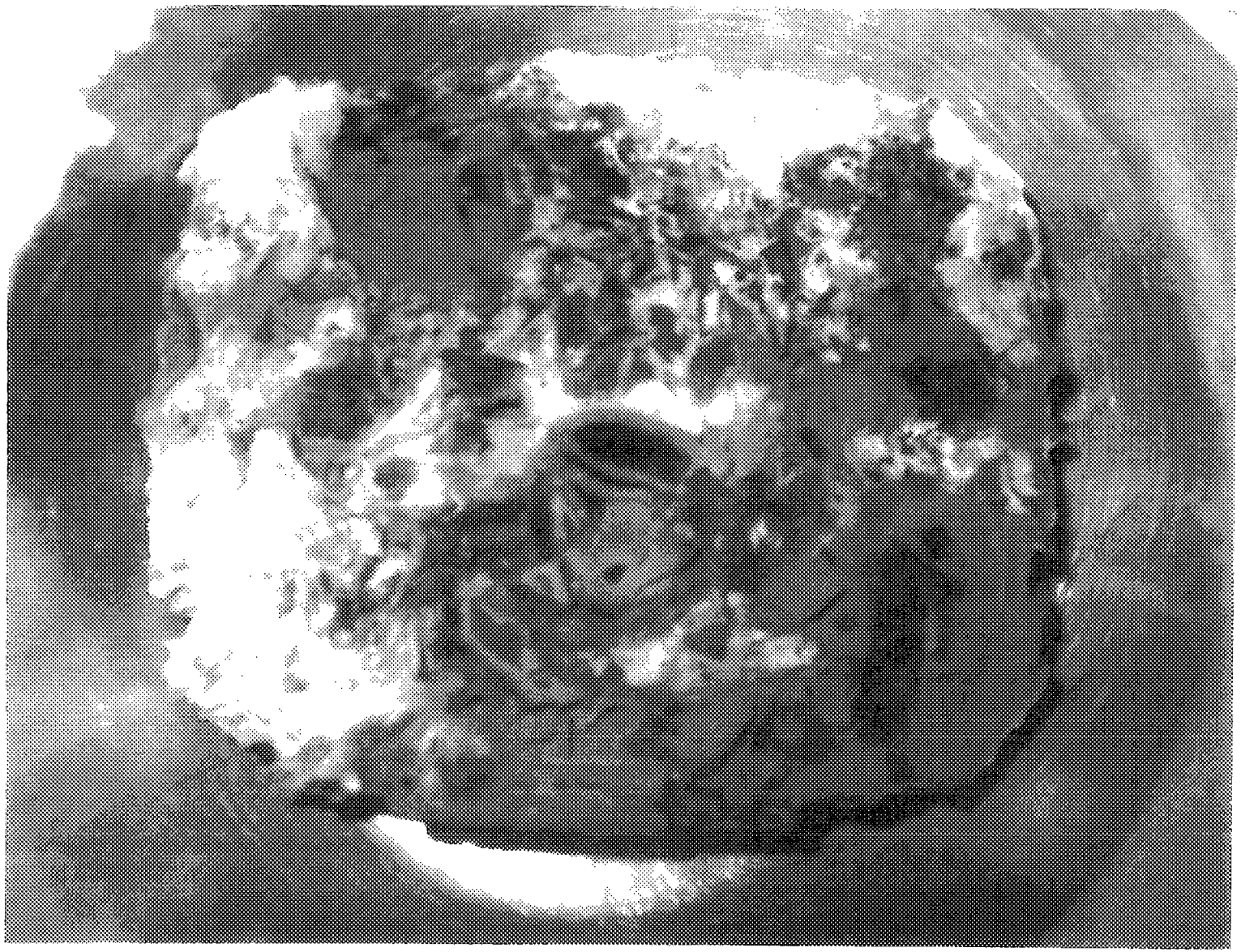


Take Down of Mycoremediated Samples



Pleurotus ostreatus

Take Down of Mycoremediated Samples



Pleurotus ostreatus

Take Down of Mycoremediated Samples

Pleurotus ostreatus

Measure Success of Treatment

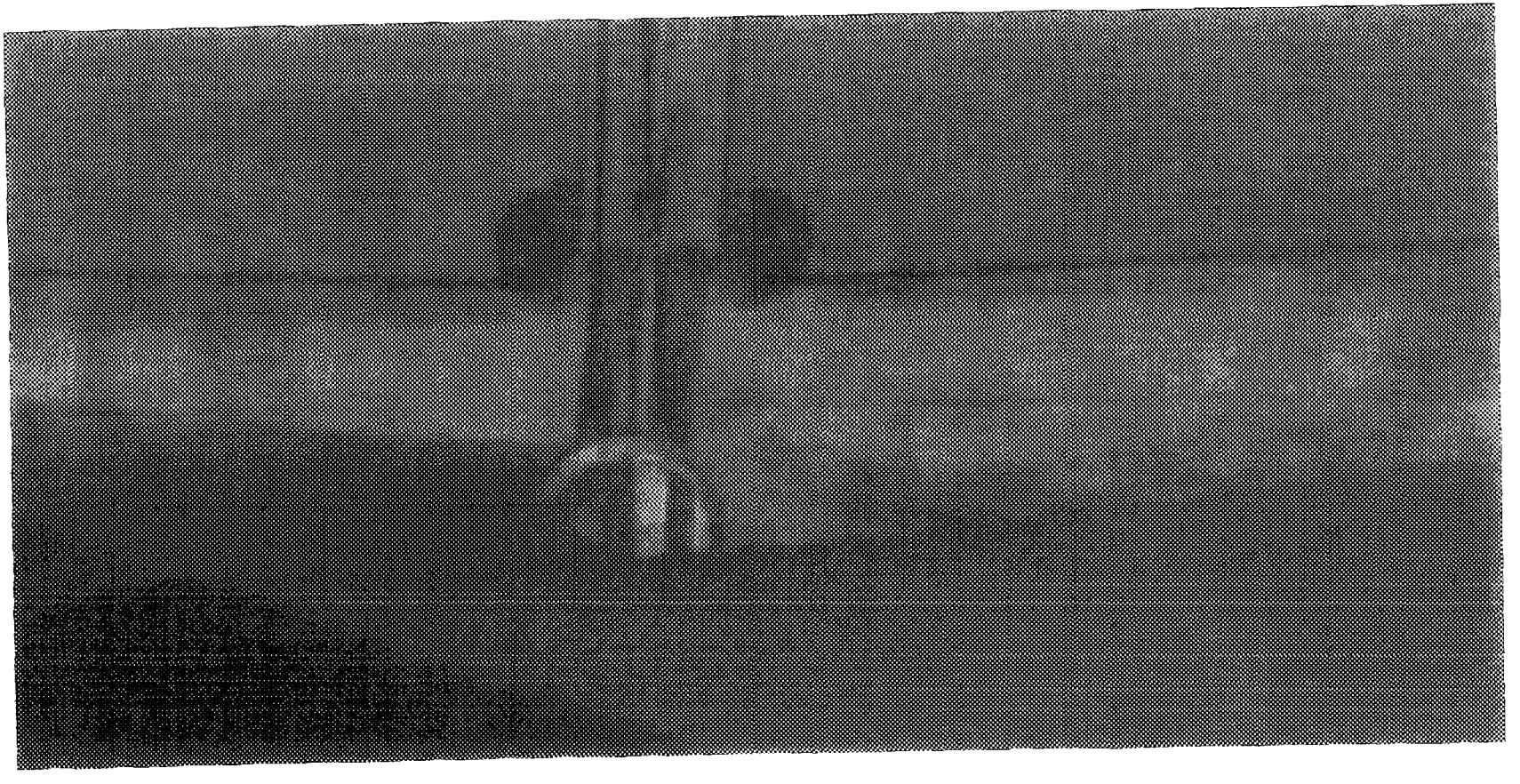
- Sample have gone to a lab for chemical analysis.
- Analytical chemistry will take approximately 2 weeks for results.

Dredging and Dewatering

- Dredging Alternatives
  - Clam Shell Bucket
  - Cutterhead
  - Hopper – mobility confined to boat
  - Dustpan
  - Submergible Agitator Pump
  - Toyon – high solids pump
- Dewatering Alternatives
  - Screw Press
  - Geotextile Tube
  - Pressure Vacuum Bag
  - Parr Canal

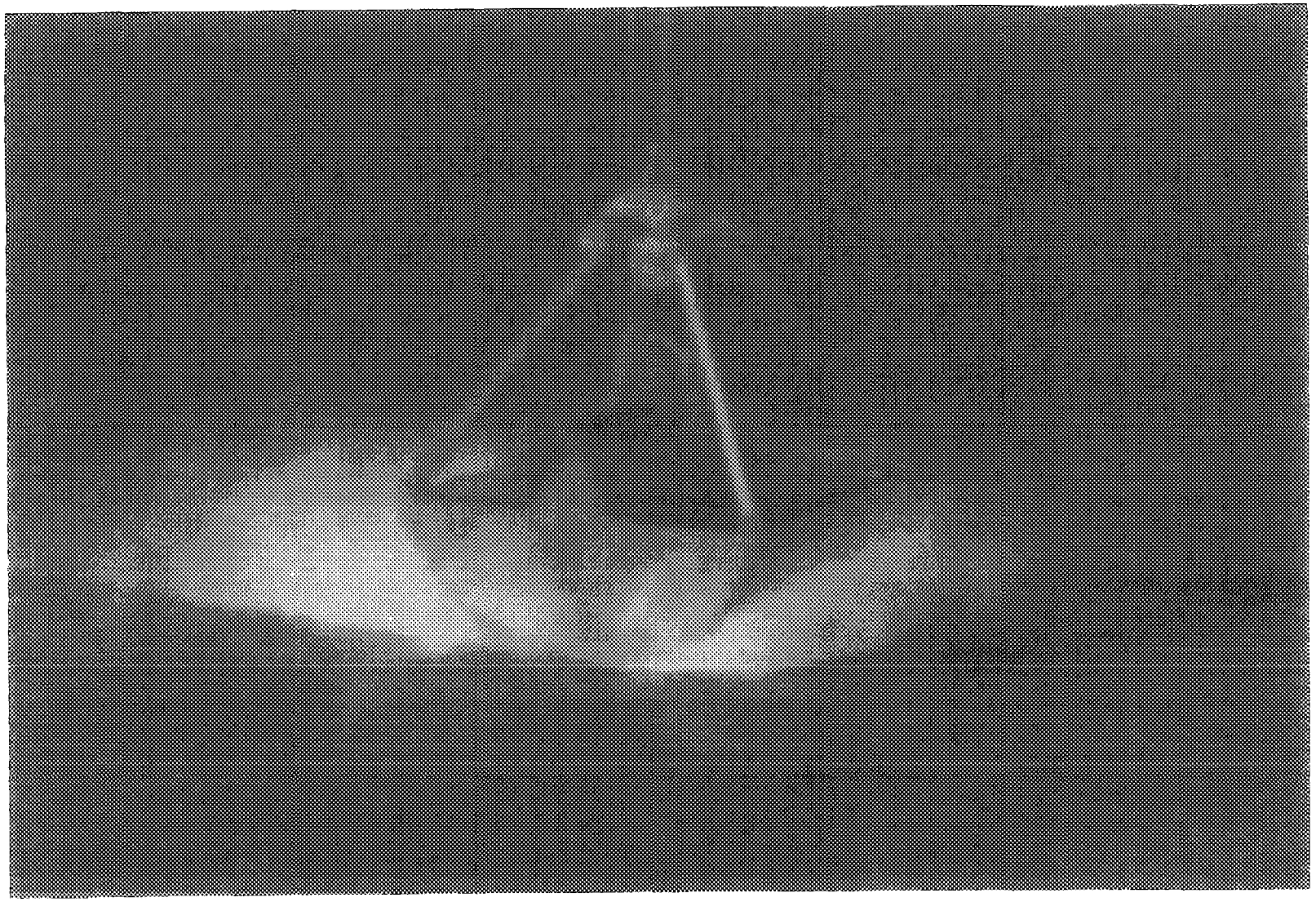
Dredging

- Cutterhead Dredge



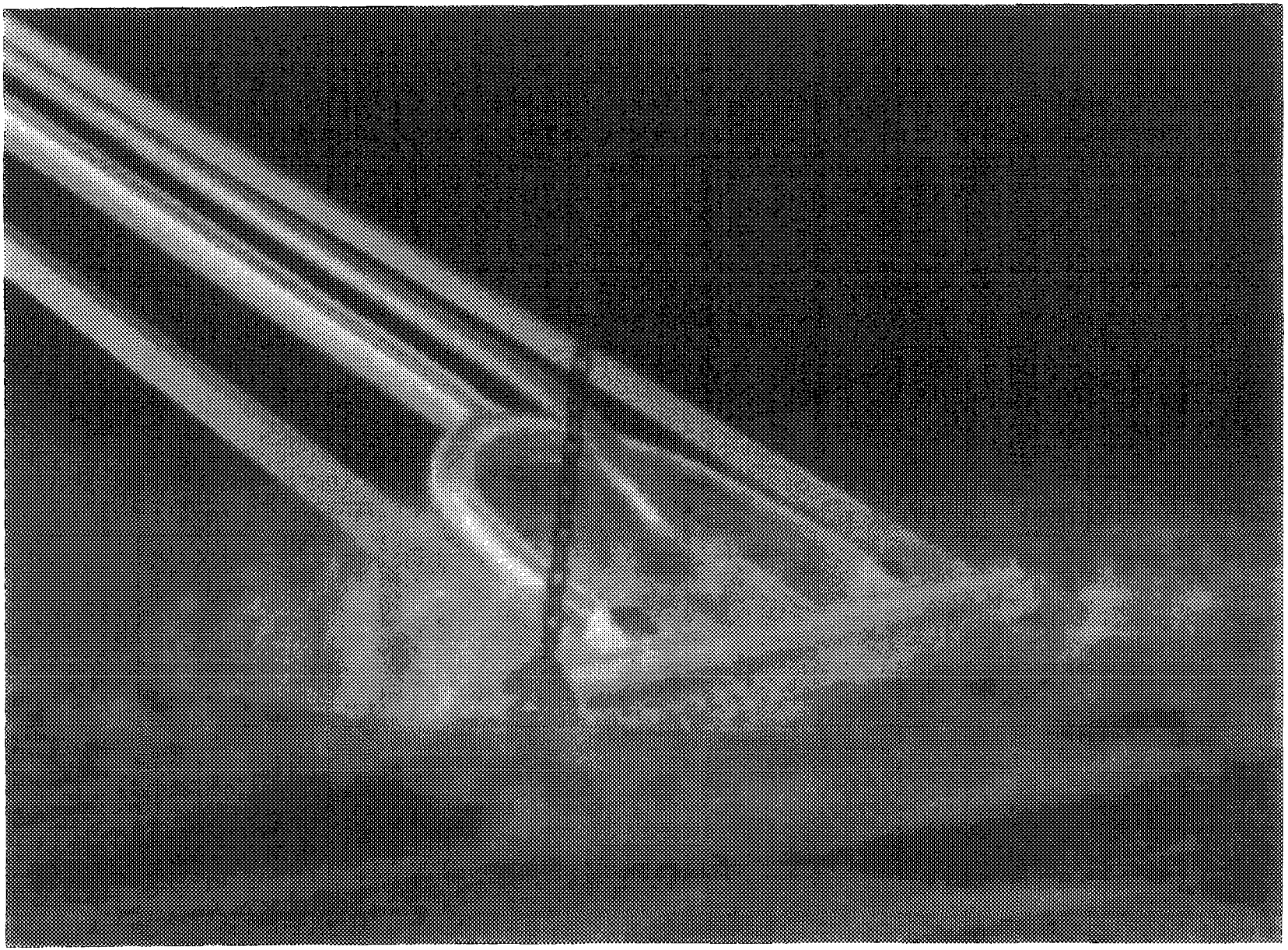
Dredging

- Clam Shell Dredge



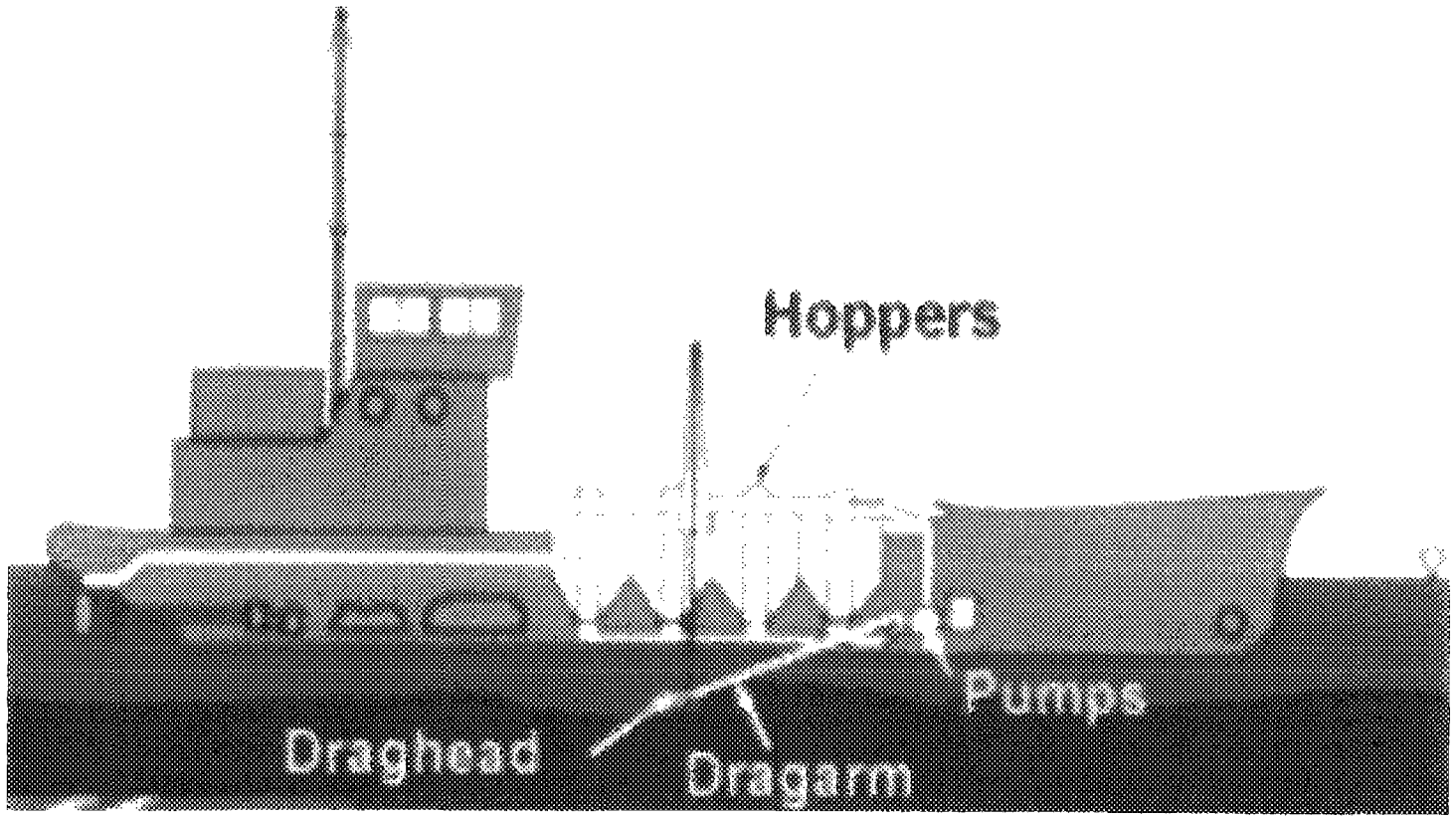
Dredging

- Dustpan Dredge



Dredging

- Hopper Dredge



Dredging

- Submergible Agitator Pump
  - (Toyo Pump video)
  - 100-300 cubic yards per hour
  - Portable size

Dredging

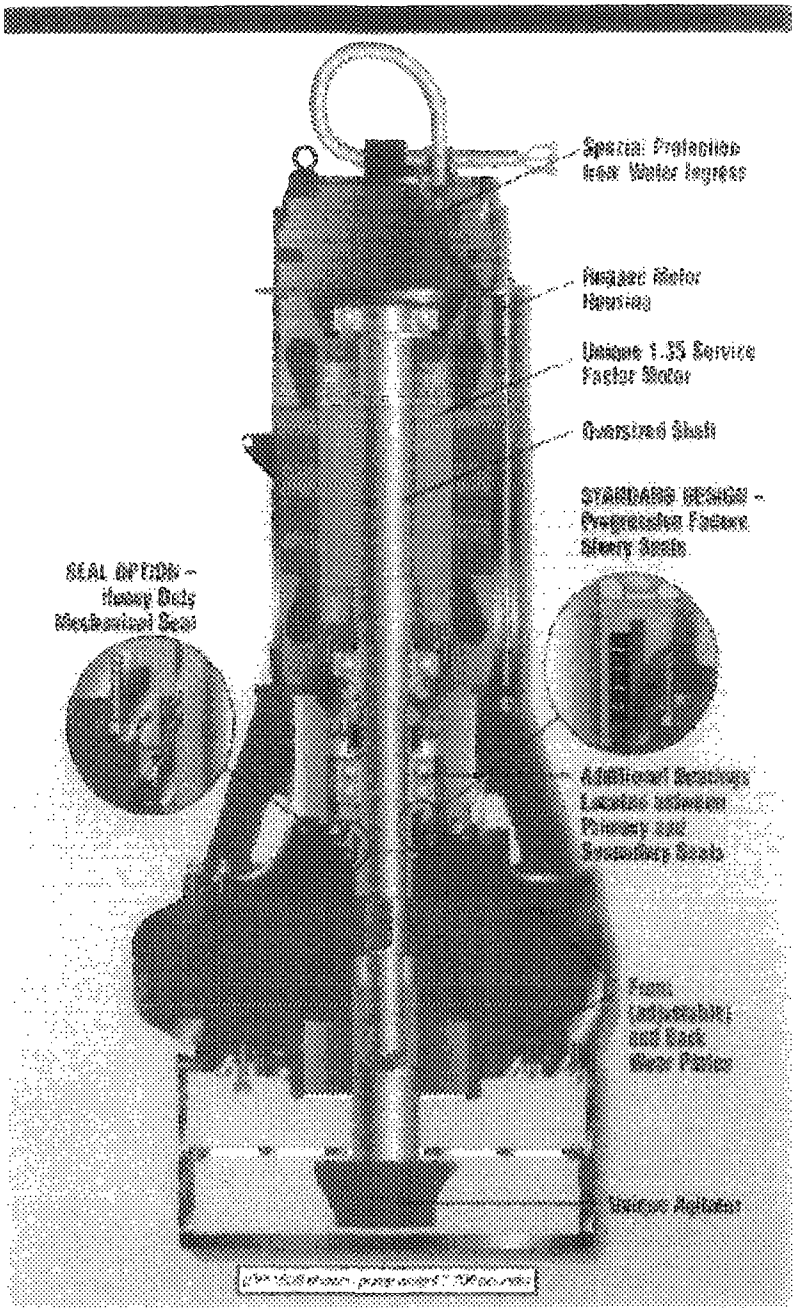
- Submergible Agitator Pump attached to excavator arm

- This configuration allows for dredging in tight spaces inaccessible to common dredges.

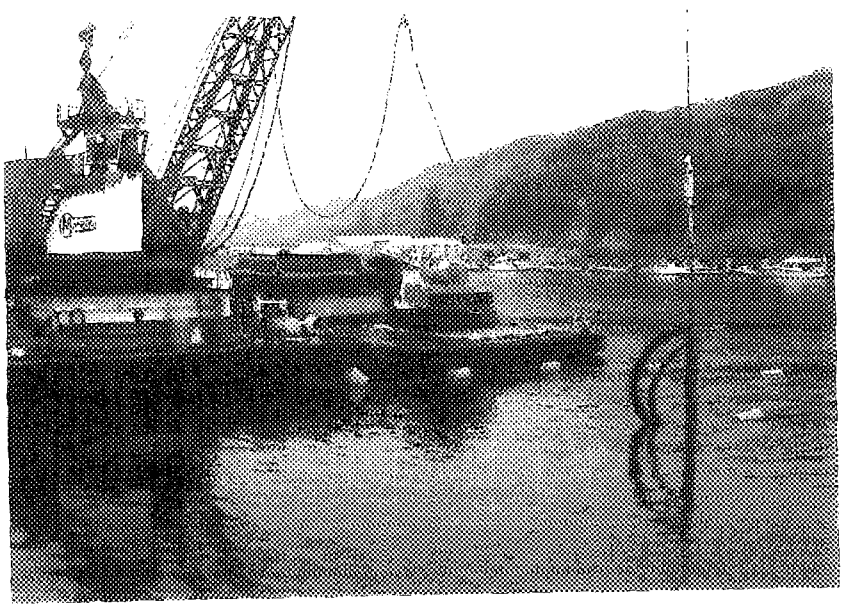
Dredging

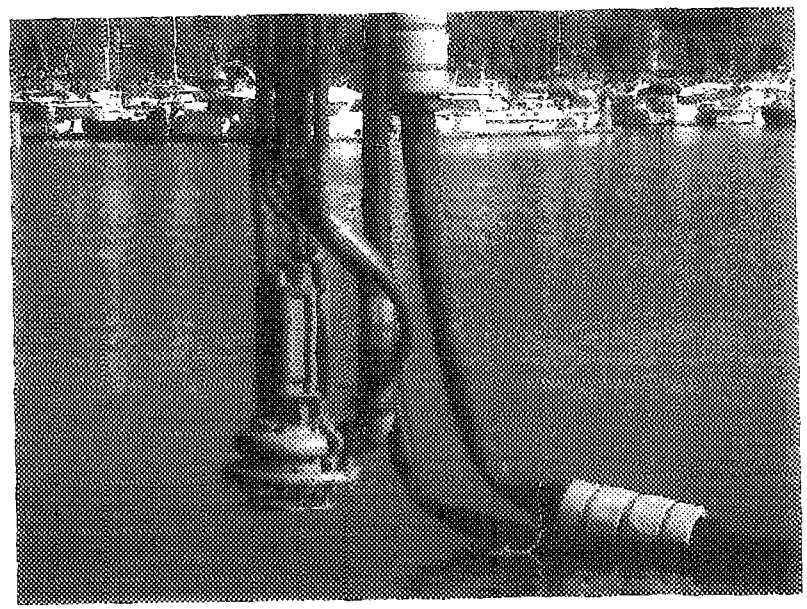
Submergible Agitator Pump

- Details
  - 12 to 25 inch diameter impeller
  - 1190 to 7700 pounds
  - 880 to 3200 gpm discharge



Dredging





Submergible Agitator Pump

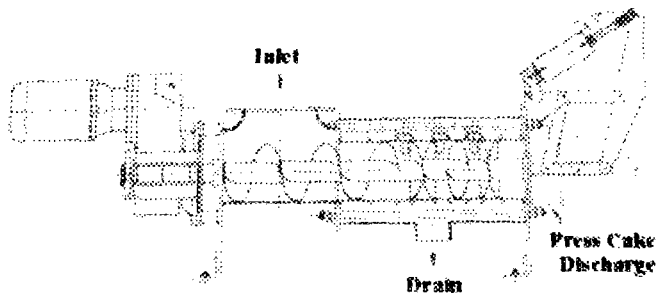
- Dredging Project
  - Hylebos Waterway, Tacoma, WA
    - Contaminated Sediment, 32,000 cy
    - EPA approved, John Malek, EPA PM
    - Low turbidity

Dewatering

Screw Press

- Medium Labor
- High operating cost, $67 per ton
- Low throughput

Vincent Screw Press



The Model KP Screw Press is a machine in which a screw of progressively reducing pitch rotates inside a cylindrical perforated screen. Material entering the hopper is subjected to gradually increasing pressure as it moves toward the exit end of the press, forcing the liquid phase to extrude through the screen. Continuous dewatering of fibrous materials has proven successful in a wide range of applications.

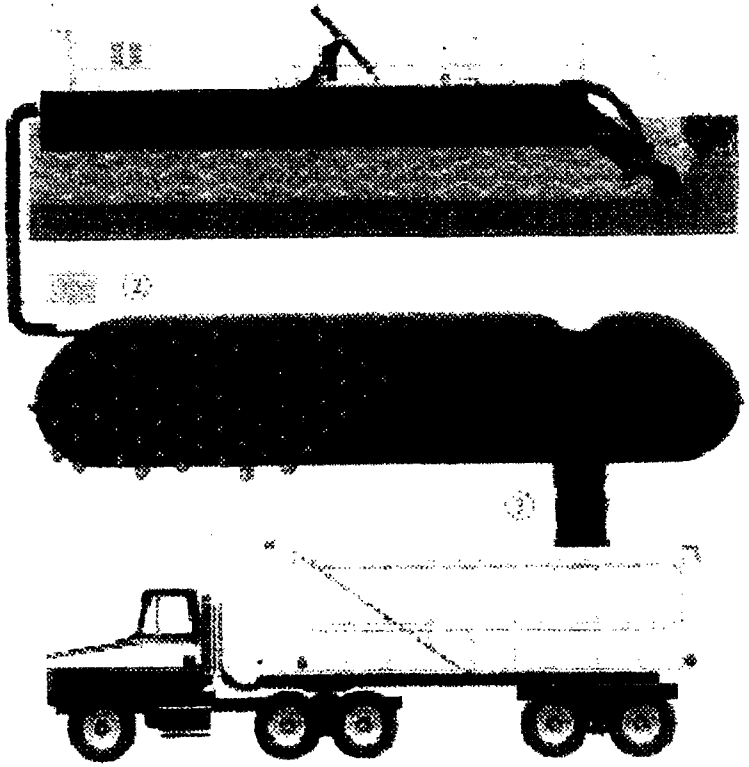
Waste from produce canneries, plastic recyclers, breweries, as well as fish and manure, will dewater with excellent results. Finial pressing is controlled by a discharge door that provides easy adjustment of moisture content. All models feature stainless steel construction. A graduated pitch and interrupted flight screw prevents jamming, while Class II gearbox selection assures long life. Counter weight-actuated models are available

MODEL	CAPACITY T/HR	CAPACITY gpm	SCREW rpm	HP	LENGTH Feet	WIDTH Feet	HEIGHT Feet	WEIGHT LBS
KP-6	0.5 - 2.5	20	32	3	6	1.2	2	600
KP-10	2 - 10	70	25	7.5	10	2	3	1,750
KP-16	8 - 50	300	20	15	13	2.5	3.5	3,700
KP-22	15 - 100	800	16	40	16	3	4	6,000

Dewatering

Geotextile Tube

- Low Labor
- Low Operating Cost
- High throughput
- High drying time
- $18 per ton

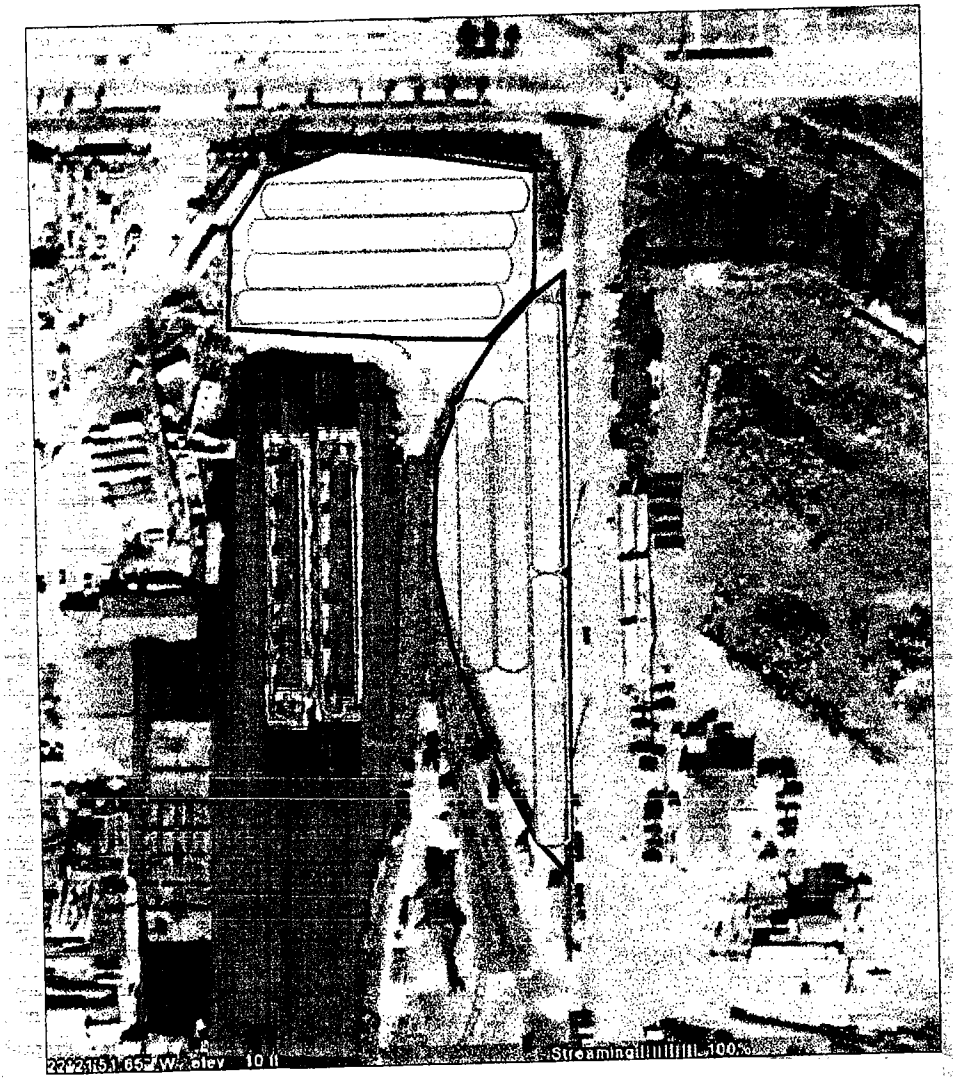


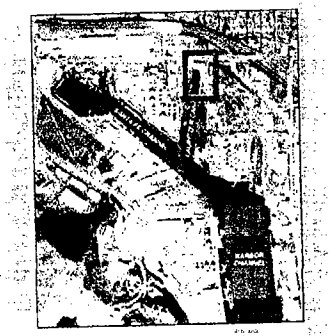
The remediation process included the following steps: 1) as the barge is guided along the ditch by a cable, the hydraulic dredge chops and grinds the sludge and pushes it ashore; 2) flocculent is added as the slurry is pumped to a large geotextile tube where the water drains out, and 3) once dry, the tube is opened and the material is transported to a landfill.

Dewatering

- Geotextile Tube
  - 200 feet in length
  - 60 feet in circumference
  - Theoretic capacity is 2,122 cubic yards
  - Pressure Vacuum Bag variation
    - Faster dewatering
    - Smaller capacity
    - $40 per ton

Geotextile Dewatering Options





LEGEND

- Project Location
- Geo-Textile Tube (~200'x25')
- 28,004 sq. Ft. (0.6 acre) 657 Ft. (perimeter)
- 30,236 sq. Ft. (0.7 acre) 946 Ft. (perimeter)

WESTON SOLUTIONS

LEVIN-RICHMOND TERMINAL
DEWATERING OPTIONS

RICHMOND, CALIFORNIA

DATE:	PROJECT:	SCALE:
OCT 2005	13317.001.001.0006	1" = 75'

1-5,000 yards
Levin-Jones
Dan yes-

Solution

EPA Pilot Study

- GLNPO funding
- 4,000 to 14,000 cubic yards
- Submergible Agitator Pump for low turbidity dredging
- Geotextile tube used for sediment containment and dewatering
- On-site or Barge Dewatering
- Mycoremediation of Contaminated Sediments
- Mare Island DMDF or landfill disposal of sediments

Solution

- Details
  - 2 to 8 Geotubes
  - (1) Submergible agitator pump (SAP) with derrick crane; SAP attached to excavator to dredge under-pier material
  - (2) 200' Scows with structural grating to support geotubes
  - (2) On-site dewatering sites with a capacity for (4) geotubes
  - Geotubes dewater with flocculants in bermed on-site locations with existing storm water collection system adapted (plugged) to contain effluent

Solution

- Details
  - Effluent collected and treated, then disposed via baker tanks at Richmond Sanitary, existing permits
  - Geotubes on barge dewater on top of grated deck, effluent is collected in the hull for treatment and reuse as offloader make-up water at disposal site
  - Mycoremediation in tubes.
  - Flocculants or effluent treatment in geotubes
  - MI DMDF NUAD disposal, less contaminated to local landfill

Discussion

Javeler
CONSTRUCTION CO., INC.
SPECIALIZED DREDGING AND EQUIPMENT

P.O. Box 13370, New Iberia, Louisiana 70562-3370

Ph. (337)-364-5841
Fax (337)-367-2888
www.javeler.com

SURGICAL DREDGING - HAZARDOUS WASTE – TACOMA PROJECT

Javeler is a specialty hydraulic dredging hub zone contractor and equipment company based out of New Iberia, Louisiana. We utilize the unique Toyo submersible agitator dredge pumps for specific applications. Javeler has for over 30 years worked as a contractor, and provider of dredging equipment to the civil, marine and offshore markets. The most recent contaminated dredging project was in Tacoma, Washington. A review of the project follows.

Hylebos Waterway – Tacoma Project

Along the bank of the Hylebos Waterway in Tacoma, Washington, Javeler hydraulically dredged 40,000 cubic yards of impacted sediment and transferred the thick slurry to a treatment/dewatering system. This particular "hot spot" in Commencement Bay was an EPA superfund site and required "surgical dredging".

The Toyo submersible agitator dredge pump was specified by the agencies and the owner as the most effective method of dredging the settled solids with the least amount of turbidity and at the highest solids content possible because of the high treatment and dewatering costs. Turbidity was a serious concern due to the nature of the impacted material. Daily monitoring was completed at 150' and 300' distances from the point of dredging. The turbidity levels averaged 1.0 NTU and never exceeded the compliance criteria at any time during the dredging operation with the Toyo. Silt screens were not required.

Javeler Construction was awarded the project because they were the most experienced contractor in the country (20+ years) with the Toyo submersible agitator dredge pumps.

Project Details:
- sludge contained PCB's, vinyl chloride, trichloroethene and heavy metals (pH of 10)
- the impacted sediment layer varied throughout the deposit but averaged 10' thick
- native sand layer below the impacted sediment - not to be removed
- heavy slurry was pumped 2,000 feet, with a 70' vertical lift to the treatment process
- sludge was soft, gelatinous and low to medium plasticity
- the in situ sludge was 32 % by weight solids
- sludge covered an area 1000' x 150' out from the dock (sludge also under the dock)
- water depth was 40' (15' tides)

JAVELER - VANCOUVER, BC OFFICE
Tel: 604-929-9543
Fax: 604-929-9542
rbinning@telus.net

Javeler used a Toyo 8 inch submersible agitator pump mounted off a 50 ton capacity crane on the Manson derrick. The derrick was 120' x 60' and had 2 spuds. You can see photos of the job on our web site at www.javeler.com.

A Trimble GPS system was mounted on the end of the crane to control the dredge pump "X" and "Y" location. A Trimble depth sensor on the Toyo provided accurate depth measurement ("Z" dimension). A magnetic flow meter/density meter provided flow rates, percent solids and production numbers. An electronic tide gauge was used for tide correction. All the information was sent to the laptop in the operators cab in the crane. A Trimble Hydropro dredge software package was used to provide live readouts/contours/3D visualizations, superimposed on the pre-dredge survey data.

Primary Contact	**Javeler Construction** www.javeler.com	**Richard Binning** Tel: 604-929-9543 rbinning@telus.net
General Contractor	**General Mechanical** 2701 South J Street Tacoma, WA 98409 Tel: 253-627-8155	**Al Boyce** Mike Clancy
Engineers	**Conestoga-Rovers & Associates Inc.** 2055 Niagara Falls Boulevard, Suite #3 Niagara Falls, New York 14304 Tel: 716-297-6150	**Jim Singer** Tel: 716-843-8686 ext: 150
EPA Contact	**John Malek** at Region 10 - EPA Seattle 1200 6th Ave 98101 Tel: 206-553-1286	
Job Site Location	Pioneer Chemicals (Port of Tacoma) 605 Alexander Ave. Tacoma, WA	

Tacoma Hazardous Waste Dredging Project Water Quality Average Readings

Oct/02- Feb/03

Location	Turbidity (NTU)	Compliance Criteria (NTU)
Hylebos Background		
near bottom average	2.4	12.4
mid depth average	0.2	10.2
near surface average	0.0	10.0
Up Current @ 300'		
near bottom average	0.6	12.4
mid depth average	0.5	10.2
near surface average	0.5	10.0
Down Current @ 150'		
near bottom average	1.5	12.4
mid depth average	0.7	10.2
near surface average	0.6	10.0
Down Current @ 300'		
near bottom average	1.1	12.4
mid depth average	0.7	10.2
near surface average	0.6	10.0

The turbidity levels never exceeded the compliance criteria at any time during the dredging operation with the Toyo.

Average turbidity levels were at approximately 10% of compliance criteria.

There was a 300 foot regulatory mixing zone at Tacoma to meet water quality criteria. Four (4) monitoring locations were 150 ft (down current) and 300 ft (1 up current, 2 down current) from the point of dredging. Three samples were collected at each monitoring location (top, middle and bottom of water column). Monitoring was performed at slack, flood and ebb tides. Hence, 12 samples per monitoring event.

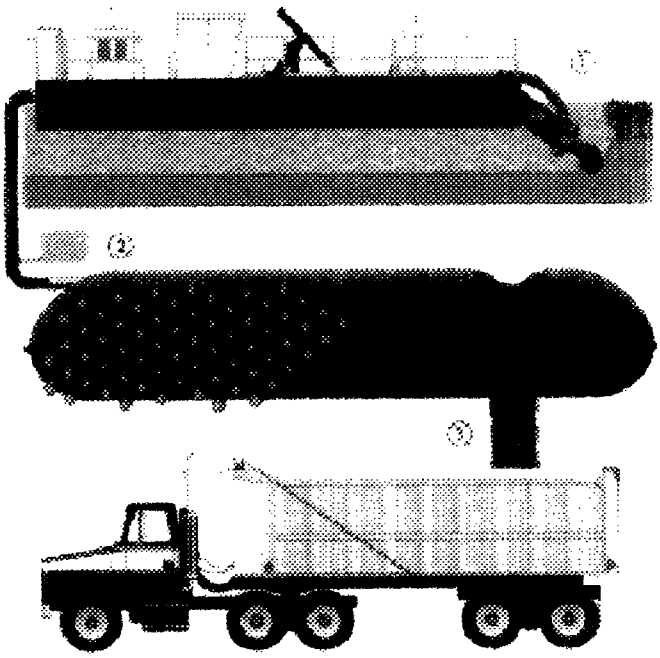
✔Successful Cost Control on Michigan Project Delights Client - Consolidated Packaging Corporation Drainage Ditch Remediation

Our WESTON team in **Michigan** was highlighted in the January issue of *CE News*. The article entitled, "Solving a PCB Predicament" was the magazine's Project Case Study of the Month.

Background

According to *CE News*, the owners of a paper mill that operated for approximately 80 years in Monroe, MI, near the River Raisin, unknowingly left an environmental mess when the facility shut down in 1980. A series of lagoons and drainage ditches on the site were lined with a thick sludge of fibrous pulp that contained polychlorinated biphenyls (PCBs), a known carcinogen in animals and a probable carcinogen in humans.

WESTON was contracted by the Michigan Department of Environmental Quality (MDEQ) for the initial investigative work at the site.



The remediation process included the following steps: 1) as the barge is guided along the ditch by a cable, the hydraulic dredge chops and grinds the sludge and pushes it ashore; 2) flocculent is added as the slurry is pumped to a large geotextile tube where the water drains out; and 3) once dry, the tube is opened and the material is transported to a landfill.

Image courtesy of *CE News*

According to **Randy Elder P.E.**, Project Manager, "The wet sludge created a significant challenge. In places it was 10 feet thick." The team was challenged with finding an inexpensive way to dewater the material after it was removed. A solution was found in the use of geotextile tubes used to dewater the dredged material. WESTON worked out an agreement with the manufacturer of the geotextile tubes (Geotubes) to run a series of tests to determine what chemicals were present and whether their product would work effectively with this waste stream. The results were positive and the Geotubes provided the cost-effective treatment the State was looking for.

The project required five Geotubes (60 feet in circumference and 200 feet long) and a dike enclosure to support the tubes and catch the runoff. An auger dredge fed the slurry through a piping network where a polymer was mixing in to aid flocculation. The mixture then entered into the Geotubes. Since the material was almost 95 percent water, the volume in each tube reduced quickly as the water escaped and was recycled into the ditches to maintain sufficient levels to float the dredge. After 60 days in the Geotubes the sludge was sampled to determine if enough dewatering had occurred to allow disposal. The samples indicated a percent solids of 70 percent. Work onsite did not allow immediate disposal and the material was left in the Geotubes for over 100 days at which time the percent solids had increased to over 80 percent further lowering disposal costs.

After the ditches were drained, the remaining sludge was excavated, exposing the original clay bottom

Following dredging the ditches were drained, the remaining material removed, and ditch bottoms tested to make sure all PCBs were removed. The excavated material was placed on a simple gravity dewatering pad where it was actively worked with a front end loader to speed drying in preparation for disposal.

According to the article, Peter Masson, Environmental Quality Analyst with the MDEQ, commented that **they were able to save a million dollars of their budget due to the innovative and cost-effective solution to a tough problem.**

The client was very satisfied with WESTON's cost control on the project. In addition, WESTON performed as the acting site manager (the client was not onsite 90% of the time!). We worked closely with the contractor to expedite the schedule and minimize costs. The project was brought in $300,000 under budget, even though 2 months of delays occurred due to excessive rain which complicated the excavation and dewatering process.

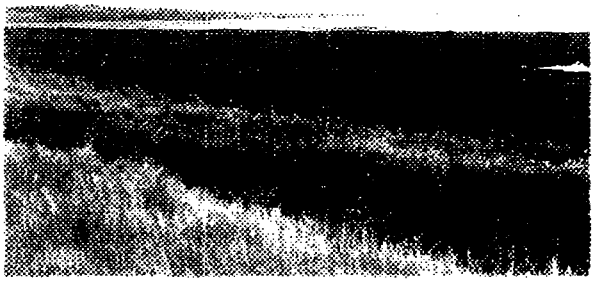
The project was completed in December 2004. Since that time WESTON has been contracted to prepare a remedial design and perform procurement/contractor oversight for removal of over 40,000 tons of lead- and PCB-contaminated soils from the same site. In addition, the client is moving forward with remediation of seven lagoons containing PCB-contaminated paper sludge. The Michigan team hopes for a successful outcome to our bid to perform this work also. Congratulations to the following team:

Randy Elder, P. E., Project Manager (**Okemos, MI**)
Chris Lantinga, Senior Project Engineer (**Okemos, MI**)
Chad Kotke, Project Scientist / Full Time Oversight
Ted LaMarre, P. E. (**Okemos, MI**) and **Jeff Binkley** (**Houghton, MI**), Design and Procurement

WESTON SOLUTIONS, INC.

REGIONAL DREDGED MATERIAL DISPOSAL FACILITY MARE ISLAND, VALLEJO, CA

Mare Island began operations as a naval support facility in 1860, serving our country for over 136 years before closing in 1996 as a result of the 1993 Base Realignment and Closure (BRAC) Act. The Navy then began the process of turning the base over to the City of Vallejo (the City), CA, which assumed the responsibilities of Local Redevelopment Authority (LRA). The City selected Weston Solutions, Inc. (WESTON®) to develop the former Navy Dredge Ponds as a Regional Dredged Material Disposal Facility (RDMDF) to accept various types of dredged materials from sites in the greater San Francisco Bay area.



Early Transfer

WESTON worked closely with the City and the Navy through the Southwest Division of the Naval Facilities Engineering Command (NAVFAC) to utilize the Early Transfer Process to transfer approximately 2,800 acres, including the Dredge Ponds and other environmentally valuable wetlands, from the Navy to the State Lands Commission (SLC). Because these lands were reversionary, the SLC will retain ownership. WESTON managed the Early Transfer Process, which was completed in September 2002 upon Governor Davis' signature of the transaction. The SLC has subleased the Dredge Ponds area to the City, and the wetlands and other valuable habitat to the U.S. Fish and Wildlife Service for wildlife management. WESTON will exercise a long-term sublease from the City to develop the RDMDF upon completing the necessary environmental processes.

Regional Dredged Material Disposal Facility

The RDMDF consists of seven ponds encompassing 350 acres, with an existing capacity of 2.5 million cubic yards. When all the levees are raised, the facility will have a buildout capacity of close to 9 million cubic yards. The facility is capable of handling both clean and impaired sediments that are unsuitable for disposal into the San Francisco Bay or the ocean. Dredged materials will be accepted from ports, marinas, the marine industry, and marine construction projects that currently have limited or no access to disposal facilities. WESTON has the flexibility of accepting dredged materials hydraulically for large navigation deepening projects, and mechanically for smaller projects. The income received by the City from the RDMDF operation will be used to fund critical infrastructure improvements at Mare Island. The environmental and operating permit processes are proceeding smoothly, with operations scheduled to begin in summer 2004.

Benefits of the RDMDF

- Supports the San Francisco Bay's Long-Term Management Strategy, which emphasizes upland placement of dredged material.
- Satisfies a critical need to provide a disposal facility for both clean and contaminated dredged materials.
- Able to handle dredged material from both small and large projects.
- Provides income to fund critical infrastructure improvements at Mare Island.

Cris Jespersen

C.Jespersen@westonsolutions.com

707-562-3268

Terry Iwagoshi

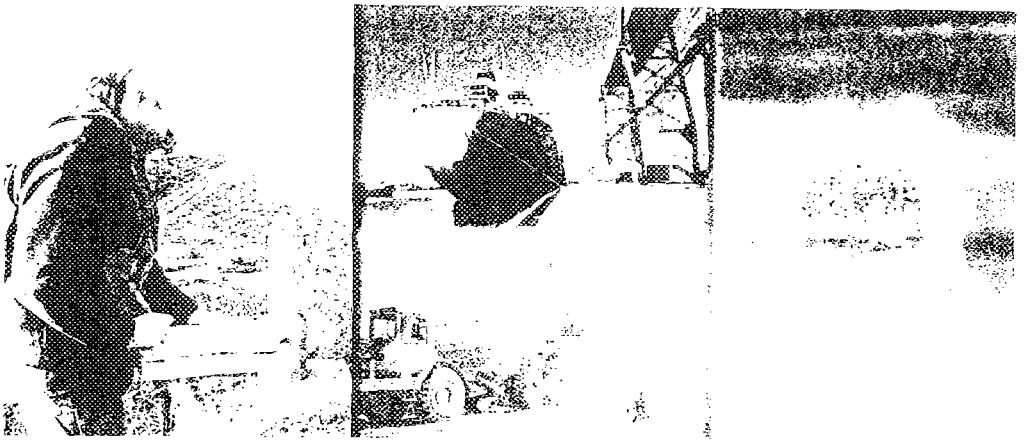
Terry.Iwagoshi@westonsolutions.com

707-562-3303

PLATINUM PROJECT SUMMARY

WESTON's Ports and Waterways Services Provide Integrated, Environmentally Sustainable Solutions

MEC Acquisition Strengthens Ecological and Environmental Problem Solving



WESTON's environmental services are dedicated to developing and implementing solutions that safely and cost-effectively maintain ports and waterways and maximize growth opportunities.

As a leading environment and redevelopment firm, Weston Solutions, Inc. (WESTON®) knows the port industry and state and municipal agencies face complex challenges in maintaining shipping operations. Our Environmental, Dredged Materials, Port Redevelopment, Contaminated Sediments, Port Security, and Air Quality Services concentrate on restoring assets to full use, making operations more productive, more competitive, and environmentally sound. WESTON's acquisition of MEC Analytical Systems complements and strengthens our services, adding expertise in Aquatic Toxicology, Watershed Management, and Marine and Aquatic Sciences.

WESTON's environmental services are dedicated to developing and implementing solutions that safely and cost-effectively maintain ports and waterways and maximize growth opportunities. As an industry leader in innovative dredged materials management, WESTON delivers sound solutions for beneficial uses, placement strategies, treatment costs, and advanced technologies.

WESTON's Port Redevelopment services harness 45 years of experience in restoring underutilized real estate, uncovering hidden assets, and adding value to your marine property. We are adept at providing cost-effective options, finding beneficial uses, and harnessing proven technologies for contaminated sediments treatment. Additionally, WESTON has extensive underwater unexploded ordnance experience.

WESTON-MEC Combination Fortifies Watershed, Marine, and Toxicology Services

Compiling more than 25 years of ecological studies and environmental problem-solving experience, MEC Analytical Systems' expert staff and services complement the 45 years of environmental and redevelopment experience of Weston Solutions. Both companies are committed to restoring resource efficiency and providing superior client services, while both have a seasoned familiarity with large water-related environmental projects. As a fortified ports and waterways team, our growth is your advantage.

Environmental Services

Dredged Materials Management

Port Redevelopment

Contaminated Sediments

Specialized Services

- Sediment Toxicity Assessment
- Watershed Management
- Port Security
- Clean Air Act Compliance

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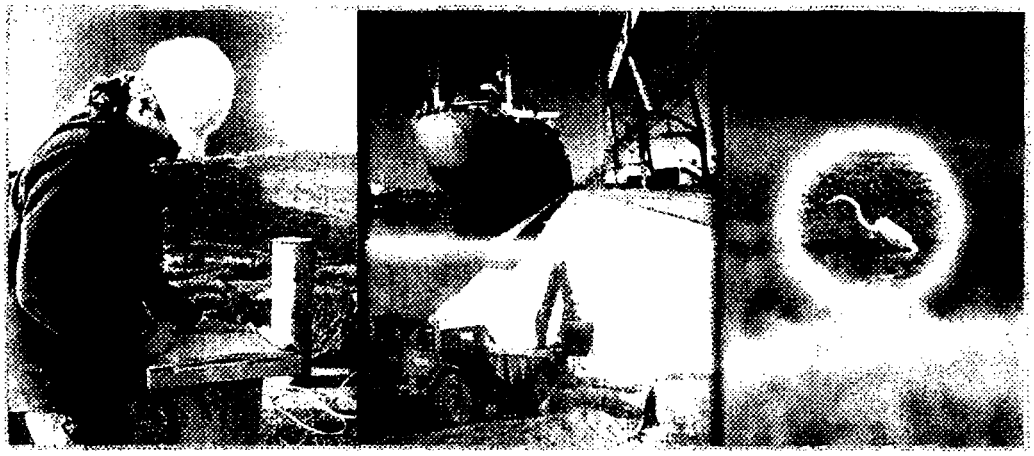
WESTON'S PORTS AND WATERWAYS SERVICES PROVIDE INTEGRATED, ENVIRONMENTALLY SUSTAINABLE SOLUTIONS

MEC Acquisition Strengthens Ecological and Environmental Problem Solving



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MEC

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WESTON's Ports and Waterways Services Provide Integrated, Environmentally Sustainable Solutions

ENVIRONMENTAL SERVICES

- Remedial Investigations
- Remediation
- Environmental Assessments Environmental Impact Studies
- Compliance Audits Permit Compliance
- Environmental Management
- Feasibility Studies
- Ecological Risk Assessment
- Marine Science
- Wetlands/Watershed Restoration
- Asbestos Monitoring
- Health and Safety Training Programs and Audits

DREDGED MATERIALS MANAGEMENT

- Planning
- Feasibility Reports
- Integrated Environmental Assessments
- Economic Analysis
- Dredged Materials Placement: Beneficial Use, Disposal
- Placement Site Design, Construction, Operations
- Regulatory Compliance
- Community Outreach

PORT REDEVELOPMENT

- Planning Studies
- Site Expansion Investigations
- Remedial Solutions Development Implementation
- Equity Partnership Development
- Facilities Operations and Maintenance

CONTAMINATED SEDIMENTS

- Turnkey Approach Innovative Solutions
- Sediment Sampling and Testing
- Sediment Removal Treatment Reuse/Disposal
- Consulting Engineering Construction
- Field Investigations Studies Modeling Assessments
- UXO Remediation
- Toxicity Identification Evaluations

SPECIALIZED SERVICES

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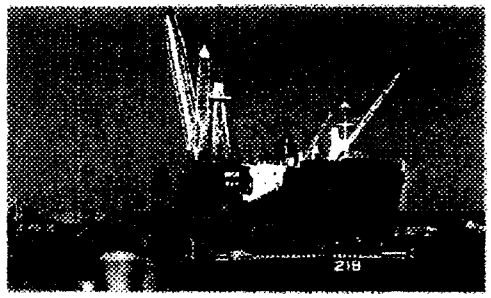
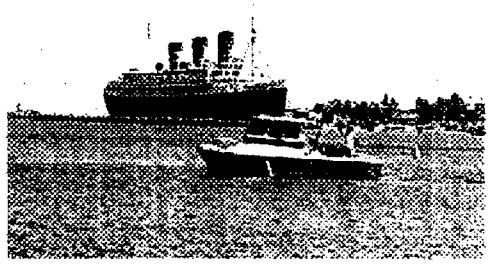
▼ ENVIRONMENTAL SERVICES

Biological Monitoring, U.S. Army Corps of Engineers, Los Angeles District

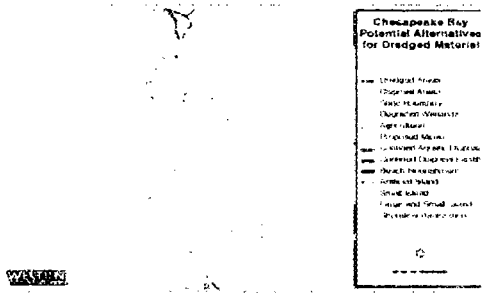


Environmental Call-In Services, Port Authority of New York and New Jersey

▼ DREDGED MATERIALS/CONTAMINATED SEDIMENTS



Sediment/Dredged Materials Sampling, Port of Long Beach, CA



Dredged Materials Management Plan, Port of Baltimore, U.S. Army Corps of Engineers

▼ PORT REDEVELOPMENT

Marine Resources Evaluation, North Embarcadero Alliance Visionary Plan Master EIR, San Diego

Port Facility and Dredged Ponds Redevelopment, Mare Island, CA

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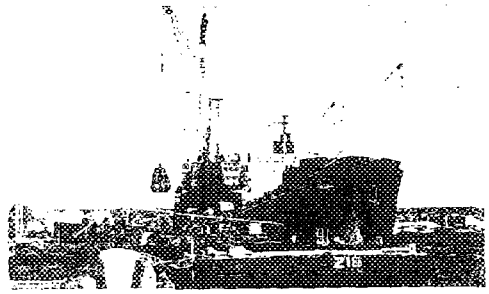

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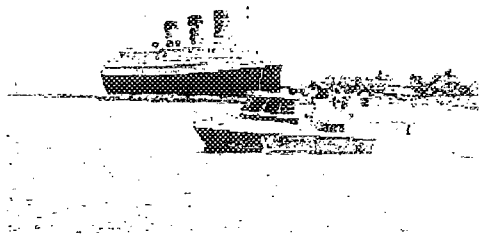

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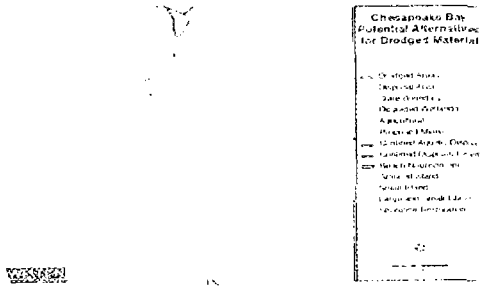

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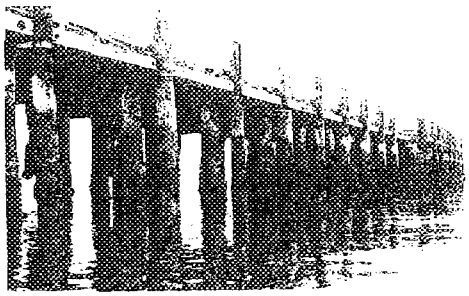

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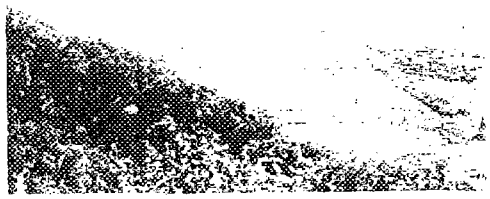

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